

SUBJECT: Lift-Slab Construction Operations - Inspection Procedures and Guidelines.

Purpose: To establish policies and provide clarification to ensure uniform enforcement of the Lift-Slab Construction Operations Standard.

Scope: This Instruction Applies OSHA-Wide

References:

1. American National Standard Institute, ANSI A10.9-2004, Safety Requirements for Concrete and Masonry Work.
2. American National Standard Institute, ANSI A58.1-1982, Minimum Design Loads for Buildings and Other Structures.
3. American Concrete Institute, ACI 318-89, Building Code Requirements for Reinforced Concrete, and ACI 318R-89, Commentary.
4. Federal OSHA STD 3-15.3, 3/1/91.

Cancellation: This instruction supersedes MNOSHA instruction STD 3-15.3 CH-1, Lift-Slab Construction Operations - Inspection Procedures and Guidelines, dated August 6, 2009.

Background:

Minnesota OSHA adopted the Lift-Slab Construction Operations Standard (1926.705) on February 25, 1991; the standard provides requirements for the safe conduct of lift-slab construction operations. Federal OSHA adopted this standard following the death of 28 workers in Connecticut who were in the process of erecting a building using the lift-slab method of construction. The knowledge derived from the investigations of that collapse resulted in a revision to the lift-slab standard. The revised standard reflects the contributions of the National Institute of Standards and Technology, the Advisory Committee on Construction Safety and Health, and various industry experts.

On March 1, 1991, Federal OSHA issued STD 3-15.3 to clarify some questions that have arisen since the adoption of this standard and provide guidelines for uniform enforcement of 1926.705. Those guidelines are listed in the ACTION section below. The federal directive also clarified some definitions of terms used in the standard, as follows:

1. **Bottom steel/integrity steel** means the installation of additional reinforcement such as a grid of rebar steel in the poured slabs near the lower portion of the slab specifically to maintain structural integrity should a failure of a jacking unit occur.
2. **Catenary action** means that the slab, acting as a beam between columns, will be capable of reacting/transferring the load, created by the loss of a single supporting lift jack or lifting unit to subsequent lifting units, without catastrophic failure.

ACTION:

- A. The OSHI shall verify that the lift-slab operations in progress were designed and planned by a Registered Professional Engineer (RPE) experienced in lift-slab construction and that the RPE has provided detailed instructions and sketches prescribing the method of construction. The name of the RPE shall be obtained from the employer's plans along with the RPE's registration number which shall be verified. (Verification can be obtained from the Minnesota Board of Architecture, Engineering, Land Surveying, Landscape Architecture, Geoscience and Interior Design; phone: 651-296-2388.) Cite 1926.705(a) for failure to meet this requirement.
- B. The OSHI shall determine that plans, designs, and methods provided by the RPE for the erection of the structure and the provisions made to ensure the lateral stability of the building/structure are being implemented. Any observed deviations from the plans and designs shall be noted in the inspection case file. Cite 1926.705(a) for failure to meet this requirement.

- C. The jacks and the jacking operations shall comply, at a minimum, with the requirements of 1926.705(b) through (j). Cite for deficient equipment or procedures.
- D. No employee, except those essential to the jacking operations, is permitted in the building/structure during jacking operations, unless the building has been sufficiently reinforced to ensure integrity during erection.
1. Essential employees include, but are not limited to, welders, helpers, trouble shooters, and supervisors performing essential functions related to the jacking/lifting and slab securing operations.
 2. Non-essential employees are prohibited from being anywhere within the building or structure when any slab is being jacked/lifted. Any slab suspended by one or more jacks is considered to be in the process of being lifted. Cite 1926.705(k)(1) if non-essential employees are observed within the building.
 3. Specific buildings/structures sufficiently reinforced to ensure integrity must be verified by a RPE other than the one who designed and planned the lifting operations. That RPE must have determined (from the implementation of the plans) that, if there is a failure of any one jacking unit, the structure as a whole will remain stable. Cite 1926.705(k)(1) if the employer fails to obtain the RPE's verification of structure integrity and is allowing non-essential employees to be in the building/structure during lift operations.
 4. If the employer claims to have complied with the Appendix to 1926.705, the OSHI shall obtain verification of such compliance from the employer including the identity and registration number of the reviewing RPE and shall record the drawing numbers, including the titles, dates, and current change letter or number, which presents the precautions taken to ensure the general structural integrity of the slabs during the construction phase. [Compliance with Appendix A is considered to meet the requirements of paragraphs (k)(1) through (k)(3).]
- E. The OSHI shall verify that the requirements of 1926.705(l) through (p) are also accomplished and/or complied with.

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For the MNOSHA Management Team

Distribution: OSHA Compliance and WSC Director

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